

Duke Energy Carolinas, LLC and Duke Energy Progress, LLC Response
to Comments Filed on June 11, 2021 per Commission Order No. 2021-163

PSCSC Docket No. 2021-66-A

Duke Energy Carolinas, LLC (“DEC”) and Duke Energy Progress, LLC (“DEP,” and together with DEC, the “Companies”) provide these comments in response to comments filed by certain other parties in Docket No. 2021-66-A, established from the March 10, 2021 Public Service Commission of South Carolina (the “Commission”) Order No. 2021-163 (the “Order”). The Order detailed eight wide-ranging topics, and specifically asked for utilities to comment on various threats—not limited to weather—and attendant impacts to utility service in this State in light of the Central United States Cold Weather Event of February 2021 causing blackouts in Texas (the “Texas Blackout”).

As an initial matter, the Companies note that some comments received in this docket are from non-utilities. As entities that are not charged with the responsibility of providing reliable electric service to customers in South Carolina or elsewhere, these non-utility entities could be seen as taking a limited view of factors that impact grid resiliency and the methods and processes that are necessary to ensure reliability and meet regulatory standards. These comments from non-utility entities fall into four generalized areas: 1) market structure, 2) import/energy exchange capability, 3) role of demand response and distributed energy resources to foster resiliency and 4) climate risk.

The Companies’ initial comments filed on June 11, 2021 in this docket address the multi-faceted operational, physical and regulatory aspects of electric power resiliency, covering a wide range of potential threats, mitigation measures and specific company actions. These responsive comments provided herein will not repeat those comments, but rather provide supplemental information for the Commission’s consideration in response to non-utility entities’ comments in this docket, and reference related initial comments by other electric providers. The Companies’ responsive comments are ordered by the generalized areas enumerated above that have been raised by non-utility entities in this docket.

1. Market Structure

In its comments filed in this docket on June 11, 2021, Google, LLC (“Google”) discusses the Texas Blackout with a focus on ERCOT islanding, or inability to import capacity and energy, lack of capacity market, and the lack of weatherization of energy assets. Google’s comments generally defend the RTO market structure, but attribute the failures leading to the Texas Blackout to specific deficiencies in how ERCOT is designed, stating that a primary purpose of its comments is to “dispel the notion that the RTO structure was inherently at fault for the Texas outages.” (Google Comments at 2). Rather, Google points to deficiencies in the ERCOT market design, including

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that the “Texas power grid operates as an island” and “the state cannot import power when it is needed,” including during the February storm. (Google Comments at 5). While Google points to ERCOT’s lack of a capacity market as a shortcoming, it also acknowledges the limitations of capacity markets to address resiliency, writing “[i]t cannot, however, be emphasized enough that the existence of a capacity market would not necessarily be a cure-all for these types of events as the other issues discussed in these comments note equal of not more important considerations in structuring of the grid of the future for South Carolina.” (Google Comments at 16). Google asserts, without supporting facts, that any claims that “an RTO construct should be avoided in the southeast...is not only wrong but may actually be harmful to grid reliability in South Carolina.” (Google Comments at 2).

DEC/DEP Response:

Duke Energy Corporation (“Duke Energy” or “the Corporation”) operates regulated utilities in both RTO and non-RTO regions, and in all cases plans for and focuses on reliability and resilience. As such, Duke Energy’s operations experts and policy experts have first-hand knowledge of the benefits, constraints and resiliency implications of RTOs, ISOs and rate-regulated, vertically-integrated systems, and those experts have informed the Companies’ responses in this docket. Notably, Duke Energy Indiana operates in the Midcontinent Independent System Operator (“MISO”) region, which was impacted by the winter storm Uri in February 2021 and Duke Energy Ohio and Duke Energy Kentucky operate in PJM.

It is important to note that the combined Carolinas system is as large and has a generation mix that is as diverse as some existing RTOs. Despite these similarities, events like the Texas Blackout and August 2020 Western Heatwave Event (the “California Blackout”) have highlighted differences in traditionally regulated versus restructured market structures when it comes to ensuring adequate resources and other investments to support system resiliency in extreme weather and critical peak demand periods. While major blackouts have been largely avoided in traditionally regulated markets, they have more frequently occurred and are feared to continue occurring in RTO regions. The North American Electric Reliability Corporation (“NERC”) has specifically raised concerns of resource adequacy in summer and winter months in California Independent System Operator (“CAISO”), ERCOT, MISO, Western Electricity Coordinating Council (“WECC”) and Northeastern Power Coordinating Council (“NPCC”), which further reveals imminent reliability challenges.^{1,2} In contrast, thanks in no small part to the current market

¹ NERC, 2021 Summer Reliability Assessment, May 2021.

² 2020 Long-Term Reliability Assessment, December 2020.

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structure and regulatory paradigm for rate-regulated, vertically-integrated electric utilities in South Carolina, grid reliability across the Duke Energy Carolinas and Duke Energy Progress service areas in the Carolinas has been exceptional, with no rotating outages in the past 30 years, despite hurricanes, polar vortices, heat waves, floods, droughts and ice storms.

Balancing and reliability areas operated by rate-regulated, vertically-integrated utilities and those managed by RTOs under federal oversight are subject to the same reliability standards and requirements established by NERC. However, the resiliency of a region is a function of numerous factors, including regulatory structure and oversight, generation mix and transmission infrastructure, the type, magnitude and frequency of reliability threats, and how investments that ensure reliability are incentivized and planned. Comments by non-utility entities that tout market structure as a solution for improved resiliency overlook critical investments necessary for system resilience, the role of regulatory oversight, and operational and planning components that entities with reliability obligations, such as the Companies, perform day-in and day-out.

Again, the Companies have an excellent history of reliability and resiliency. The Companies assert that the absence of rotating outages is not by chance or luck but instead a function of design and accountability structures inherent to the rate-regulated, vertically-integrated utility. For South Carolina customers, the current regulatory construct reduces customer exposure to reliability issues because the “obligation to serve” is fundamentally clear and fully reinforced by state regulators. Just as environmental regulations are promulgated to establish protective standards, foster accountability and provide for regulatory oversight, the South Carolina regulatory model provides benefits to residents because it establishes standards, includes state oversight of electric service planning and reliability, and provides clear accountability for prudent decision making. Having rate-regulated, vertically-integrated electric service providers directly accountable to state regulators for ensuring the integration of capacity planning, transmission and distribution provides South Carolina with a competitive advantage when it comes to reliability and resiliency. Moreover, these characteristics make South Carolina a very attractive destination for job-creating economic development. An RTO structure with an independent board cannot replicate the level of accountability and control held by the South Carolina legislature, Public Utilities Review Committee and state regulatory departments over rate-regulated, vertically-integrated utilities. Dominion Energy South Carolina, Inc. (“Dominion”) echoed these sentiments in its comments:

“State utility regulation is the bedrock on which the reliability of South Carolina’s electric and natural gas systems rests. Only a financially healthy utility can afford to make the investments required for reliability. A utility’s financial health depends on regulatory

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policies that provide compensatory rates to allow it to recoup its investments in utility infrastructure.” (Dominion Comments at 4).

In RTOs, gaps and dilution in accountability across the various entities for the critical responsibility of peak resource and capacity planning have emerged, highlighted in the Texas Blackout during a polar vortex and the California Blackout during an extreme heatwave, but recognized across all RTOs. The lessons learned from Texas about hardening, preparing for extreme weather and completing plant weatherization are not new to the February 2021 storm, and are well understood from several past events in that state. However, the truth is this failure is not simply a matter of Texas choice. The failure to prepare, invest and take action on these lessons can be attributed to shortcomings of the ERCOT market, which relied on scarcity pricing and provided no financial incentives to invest in winterization so that power providers delivered when customers needed energy the most. As a result, when the extreme cold weather hit, various types of unwinterized generation infrastructure failed. These failures in turn resulted in scarcity, which in turn lead the market to react by sending bills through the roof. Other restructured markets are facing similar issues. California is entering this summer on the edge of having enough resources to manage through another prolonged heatwave similar to last year’s California Blackout. Unable to rely on the market, the California Public Utilities Commission is instituting specific changes and mandating additional power procurements due to summer reliability concerns.³ Other RTOs (e.g., PJM) are struggling with capacity markets that are not providing sufficient incentive to construct necessary dispatchable capacity and are pushing out zero-carbon baseload nuclear generation.

Many of the issues raised by Google are naturally avoided in a regulated structure and sustain what is important to South Carolina – preservation of critical nuclear assets along with jobs and economic benefits that flow therefrom, no exposure to misalignment of federal market policy rules and state energy objectives, and the ability of the state to control reliability and resiliency investments and costs. South Carolina has regulatory authority to administer and approve the integrated resource planning to make the most informed decisions for customers, and utilities must demonstrate they can meet their obligation to serve in peak demand conditions. The State can focus on its priorities to ensure the system is adaptive and responsive, while managing the costs of that resiliency.

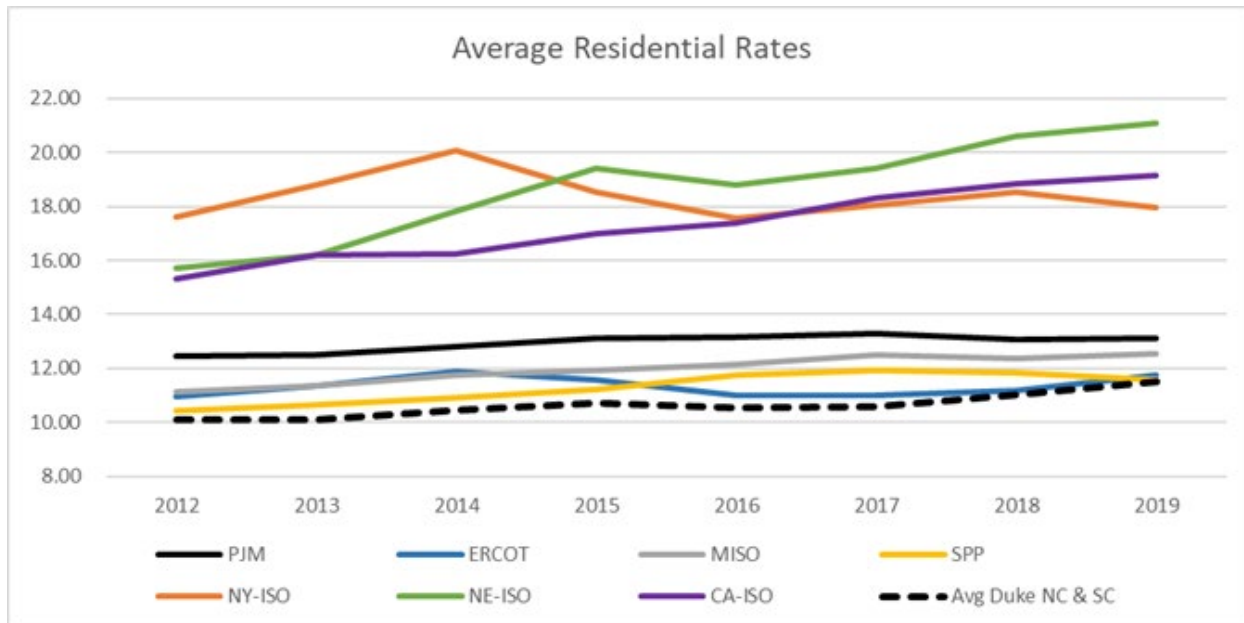
Further, any claim that as a trade-off to reliability, a larger wholesale market will somehow improve retail rates is not supported by data from the U.S. Energy Information Association

³ Summer 2021 Reliability: <https://www.cpuc.ca.gov/General.aspx?id=6442466895>

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(“EIA”). Indeed, several RTO regions have much higher electric rates than DEC and DEP in South Carolina, as shown in the graphic below.⁴



Source: U.S. Energy Information Administration, 2019 data from EIA 861

Comments by Google restate some of the specific symptoms of the Texas Blackout, but mistakenly dismiss the tragic outcomes in Texas as a result of ERCOT’s peculiarities rather than recognizing them as a result of market structure that does not properly incentivize investment in reliability and resilience. Additionally, they would ignore the fact that South Carolina customers have benefited from a rate-regulated, vertically-integrated system and a historically constructive regulatory environment that has produced reliable service, rates well below the national average, and oversight for accountable providers. Understanding the risk and consequences of removing this clear accountability and reducing state oversight are critical elements of evaluating threats to electric service.

2. Import Capability in South Carolina and Geographic Diversity

Regarding power exchange with neighboring balancing areas in the Southeast, Google notes that the “existence of physical tie-ins between these local balancing areas provides some additional

⁴ McNamee, B. [Why Marginal Pricing in Wholesale Electric Markets May Need Reform](#), RealClearEnergy. June 20, 2021.

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reliability benefits, however without meaningful coordination and agreements in place, the ability to share power becomes much less effective. South Carolina's case may provide an example of such a situation, where multiple Balancing Authority Areas ("BAAs") exist within the same physically interconnected region, but coordination between these areas is somewhat limited." Google opines that "[c]onsolidation of these BAAs into a single RTO would inherently coordinate these operations and thereby enhance the reliability benefits of resource sharing during extreme conditions. Moreover, this could streamline the ability to coordinate with other RTOs during extreme events, as well as for planning purposes, due to the fewer number of joint operating agreements necessary." (Google Comments at 7).

Walmart also asserts that "market reform measures would allow access to a larger and more geographically and fuel-diverse set of generation to be utilized under all operating conditions, and the Commission should include the findings of the study in the consideration of resilience solution." (Walmart Comments at 4).

DEC/DEP Response:

Comments by non-utility entities ignore that the Companies already operate in an area with greater scale and more diverse generation mix than many existing RTOs. It is also inaccurate to suggest that traditional balancing authorities are somehow less capable of sharing energy within an interconnection. Sharing between balancing authorities occurs daily in the Southeast, during both normal or extreme weather conditions, and has been effective for decades. As an example, during the January 2018 extreme cold weather event, DEC and DEP imported non-firm energy from neighboring systems during off-peak periods to store energy at the pumped storage hydro facilities that were used for peaking capacity during the extreme cold weather period. Duke Energy also participates in a VACAR (Virginia and the Carolinas) reserve sharing program where reserves can be provided to support neighboring utilities in the event of an emergency.

The Companies are accountable to ensure reliability for much of the Carolinas and understand that resiliency is the result of coordinated and integrated actions, rather than just the creation of a single entity such as an RTO. Greater geographic size and interconnection alone are not enough to guarantee multi-faceted resiliency, particularly under extreme operating conditions. Events can be widespread enough to strain supply broadly across a region, or critical areas of the system may be negatively impacted that limit import capability. Due to the widespread nature of the February 2021 winter weather event, MISO and SPP also shed load despite being interconnected and importing available energy. During the California Blackout, California elected to rely heavily on

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off-system energy imports that became constrained due to the widespread nature of the heatwave across other western states and wildfires. In August 2003, MISO experienced a blackout when heavy imports into the Midwest caused a transmission line to sag into trees initiating cascading outages of other transmission lines resulting in a widespread blackout. It is not accurate to suggest resiliency issues are unique to ERCOT. As previously discussed, in its current risk assessment NERC specifically raises concerns of resource adequacy in summer and winter in multiple regions.

3. The Role of Demand Response and Distributed Energy Resources

Walmart's comments discuss how demand response and distributed energy resources can enhance resiliency, writing that such resources "can also provide independent sources of capacity that can operate in conjunction with or independent of the grid as appropriate during times of grid stress and/or extreme weather events." (Walmart Comments at 4). Walmart points to the benefits of distributed energy resources as "helping to improve system reliability and resiliency by providing dispatchable generation resources that supply power when electricity from the utility is no longer available." (Walmart Comments at 6).

DEC/DEP Response:

The Companies agree that demand response and distributed energy resources are integral components of a diverse and reliable system, and we should continue to advance those technologies, energy efficiency and supportive policies. However, these components in and of themselves cannot address large-scale resiliency issues for the core transmission and distribution system. These technologies may provide only limited resiliency during a widespread and multi-day weather event. Extended extreme cold is particularly challenging on customers, which limits broad demand response adoption, particularly as increasing percentages of heating in South Carolina is electric. The effectiveness of distributed generation or storage resources may also be hampered in multi-day events, depending on availability, such as limited on-site fuel storage, battery life of hours rather than days, and reduced or zero output from solar facilities during cloud cover or snow cover.

Central Electric Power Cooperative, Inc. ("Central") raised the intermittent production profile of solar being mismatched with winter and summer peaks as another consideration in resiliency, noting "winter peak occurs early in the morning when solar irradiance is low, so solar production is minimal at the time of the winter peak" and while solar is producing in during summer days, "Central's summer peak typically occurs as the sun is beginning to set, reducing the capacity value

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of solar generating facilities.” (Central Comments at 9). Dominion further commented on the challenges for integrating distributed energy resources that are not owned by the utility:

“In the long view, an additional risk to the reliability and resiliency of the grid is the growing proportion of generation resources overall that are not owned and dispatched by the utility with the obligation to serve. The extensive growth of solar on the DESC system has contributed meaningfully to the carbon reduction achieved. However, the owners of those assets are not accountable to customers the same way the utility is, and are generally motivated by the same financial drivers as generators in the Texas model that contributed to the events of 2021.” (Dominion Comments at 23).

These concerns are consistent with NERC, which has identified a risk to planning and real-time operations risk to the electric system due to changing generating resources and fuel sources, including the growth in variable energy resources.⁵ DEC and DEP are closely reviewing both the Texas Blackout and California Blackout events in light of variable generation integration to learn as much possible about specific operational challenges of integrating increasing amounts of solar and wind in extreme weather situations as DEC and DEP transition their generation portfolios.

From a system-wide perspective, as more distributed energy resources are brought onto the system, there will be additional balancing measures required for resiliency in order to avoid situations such as those experienced in California, when a significant percentage of generation drops off when solar facilities are not producing. It is precisely this balancing act that the Companies must navigate as the system transitions to more distributed energy sources and as traditional dispatchable resources are retired.

4. Climate Risk

Vote Solar’s initial comments in this docket focus on the resiliency challenges from climate change, and recommend that “the Commission should not limit itself to consideration of only one type of weather hazard” and to “broaden the scope of its inquiry to include the impacts of hurricanes, flooding, heat waves, and drought on the electric system and to identify strategies for mitigating grid vulnerability to such hazards.” (Vote Solar Comments at 2). Further, Vote Solar advocates that “the Commission initiate a climate adaptation proceeding” and require utilities to

⁵ In the 2020 Long-Term Reliability Assessment, NERC notes that “[a]s more solar and wind generation is added, additional flexible resources are needed to offset these resources’ variability” and variable resources mean that “operators must increasingly balance uncertain loads with uncertain generation.”

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demonstrate reasonable and prudent steps to adopt adaptation measures that help improve grid resilience and reliability to match the world that we will inhabit 10, 20, and 50 years from today.” (Vote Solar Comments at 3).

DEC/DEP Response:

The Companies’ initial comments focused on a wide range of weather hazards, including hurricanes, flooding, drought, as well as winter weather. Indeed, the Companies have the responsibility and are accountable to maintain reliability through all weather conditions, plan and respond to all severe weather events that can occur in the region. As the Companies’ initial comments demonstrate, there is a range of actions DEC and DEP take to address these weather threats such as weatherization at generation stations, flood mitigation at substations, and design standards that take into consideration coldest temperatures recorded for a new generator’s location, and planning and constructing for a higher floodplain. Further, climate adaptation measures are part of the holistic approach that DEC and DEP have implemented to identify, assess and mitigate these impacts. The Companies support targeted investments that are “proactive and intentional” (Vote Solar Comments at 3) to increase grid resiliency and reliability in the face of climate-related impacts.

However, the Companies note that while many resiliency measures undertaken today have long-term benefits for improved resiliency, such as flood barriers around substations, predicting the resiliency measures necessary 50 years from today would be purely speculative and fraught with uncertainty. That is why the Companies’ resiliency planning adopts a continuous learning approach and incorporates lessons learned across the service territory as well as other areas of the country, implements best practices and includes targeted investments that provide tangible benefits to customers. The Companies also note that a separate climate adaptation proceeding is unnecessary and redundant with issues considered in other dockets that are before the Commission, including this docket, rate cases, grid modernization cases and integrated resource plans. Further, the climate resiliency study that was approved by the North Carolina Utilities Commission as part of a settlement with Vote Solar will provide information on climate risks to grid assets, and the Companies have made an informational filing detailing that study with the Commission⁶ and will provide its findings with this Commission to inform measures to further enhance resiliency.

⁶ See Docket No. 2021-197-E (Duke Energy Carolinas, LLC’s and Duke Energy Progress, LLC’s Notice of Initiation of Transmission and Distribution Climate Risk and Resilience Working Group Process).

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CONCLUSION

In conclusion, in contrast to the tragic experience of customers in Texas, Duke Energy Carolinas, LLC's and Duke Energy Progress, LLC's South Carolina customers experience the benefits of reliable service, low rates, and world-class economic development opportunities as the result of the state's leadership in rate regulation and oversight of the state's vertically integrated utilities, and the prospect of changes from that construct should be carefully and thoughtfully considered.